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2 PARTS

PART 2

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Another Opportunity to Help

JUST three years ago the membership was asked to help by commenting on a document which had been prepared for guidance and use of the entire profession. Many did comment and their suggestions improved the original.

A similar opportunity is now offered. Pages 236 to 284 of Part I of *Proceedings* display a Report of the Special Committee on Charges and Method of Making Charges for Professional Services, which the Board of Direction has ordered printed for comment—constructive criticism.

Charges For Services

MUCH has been written, and more talked, about the methods which prevail and which should prevail in making charges for professional services, and also about what those charges should be.

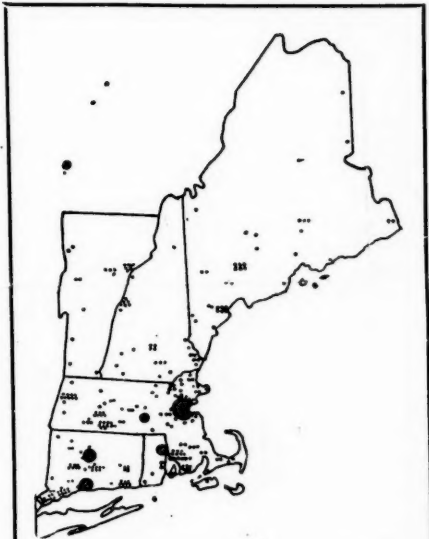
A Society Committee consisting of J. Vipond Davies, *Chairman*; H. Eltinge Breed, W. W. Colpitts, C. W. Hudson, W. S. Kinnear, J. R. McClintock, I. W. McConnell, Ralph Modjeski, R. R. Rumery, and J. F. Sanborn, has prepared a document which attempts to go into the fundamentals underlying the relations of engineer and client and the understandings which should result from those fundamentals.

It covers the ethics of the business relations of engineer and client; the contract essentials; the Percentage Fee; the Lump Sum Fee; the Per Diem Rate; Retaining Fees; Contingent Fees; Overhead; Arbitrations; Appraisals; Ownership of Designs; Bad Debts; and a wide variety of other topics.

A glance will indicate the very great time and care given by the Committee and its Chairman to this report. It is only fair, therefore, that it receive commensurate study on the part of those best able to help improve it.

It is anticipated that, upon study of the suggestions received, some modifications, or amplifications, may be in order and that when made the report will be adopted by the Board of Direction as authoritative.

See page 236 in Part I of *Proceedings*.



The New England and Quebec Province areas, tributary to the Boston Meeting in October, contain 875 Society members, distributed as the dots on the map indicate.

Boston-October 9, 10, 11

THE Boston Meeting. Who will be there? What topics are to be discussed? What else will be going on? These are the questions members of the Society are now asking themselves.

Who will be there? In the first place all the New England members will be there. Well, perhaps not all, but most of them. New England has an area of 66,427 square miles and, according to the 1929 Year Book, a Society population of 809. That's 1 to each 82 square miles, a density of population probably not exceeded by any area except the cities. In addition, the Province of New Brunswick in Canada has 3 members and that of Quebec near-by has 63, so that a total of 875 members may readily look upon the Boston meeting as theirs.

A map with a dot for each member gives occasion for thought as to the isolation of some members, and the significance to them of a Society meeting coming within reasonable travel distance. The Society has not held a meeting in New England since the Portsmouth, N. H., Convention in 1922, although it did hold a well attended meeting in Montreal in 1925.

On such a map the scale of dots must perforce become a little distorted. Nine separate dots for the nine members resident in Pittsfield for instance could not readily be on the same scale as the dots for members resident in Boston and vicinity who number nearly 400 (dependent on what is considered a "vicinity"). In Worcester there are 28 members; in Providence, 30; in Hartford and "vicinity", about 50; and in New Haven and in Montreal about that same number. The remaining 267

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Technical Division "Letters"

THAT there might be real contact between those in charge of the activities of the Technical Divisions and the members of the Society interested in the subjects in which they specialize, the Board of Direction has decided that this part of Proceedings is to be opened to the Chairmen of the Executive Committees of these Divisions for explanation of their methods and hopes for carrying on the Society's work in these fields.

Two "letters"—one from the Structural Division and one from the Surveying and Mapping Division are incorporated in this issue.

Surveying and Mapping Division

By WILLIAM BOWIE

Chairman Executive Committee

A NOTABLE change has been taking place in recent years in regard to surveying and mapping and their application to engineering and other large activities. The time has long since passed when the owner of a farm or a city lot was willing to have the location of his boundaries made by the crude methods of a former generation.

The Jacob's staff and Gunther's chain served the surveyor very well when population was scarce and land plentiful. With increased population and greater value for the land, however, an error of a few inches in the location of a boundary line may have a greater monetary significance than a few hundred feet might have had when we were only an agricultural nation.

Engineering projects of to-day cost large sums of money, whether they are tunnels under a river or mountain, a subway under a city, a bridge over a river, a hydro-electric plant, or any one of a number of different types of projects or structures.

Where the simple and small surveyor's transit was adequate for location and construction surveys a short time ago it has been replaced by instruments that are associated with high grade geodetic surveys. Not only is the accuracy obtained with these modern instruments much greater than could have been secured by the primitive instruments, but the observations can be made in much less time and with no increase in cost. To-day one would be foolish to un-

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Structural Division

By GEORGE E. BEGGS

Chairman Executive Committee

THE Executive Committee of the Structural Division is aware of the fact that the Division membership includes a large number of engineers notable for their experience, ability, and accomplishments. This Committee is convinced that these engineers can make valuable contributions and that they will willingly give their services toward the advancement of the profession, once an arrangement is effected whereby they may work efficiently with others toward a promising objective.

Stimulated by this idea of a greater service to the profession by the Division membership and guided by the advice of able members of the Division and Officers of the Society, the Executive Committee now proposes to make the activities of the Division more productive by enlisting the support of a greater number of its members and by directing their attack toward definite objectives, so that their combined energy may not be wasted.

Specifically, the Executive Committee proposes two general methods of attaining this end: First, by a change in policy in planning programs of the Division at annual and quarterly meetings; second, by the creation of Committees from the Division membership to deal with subjects of special interest.

Program. In the matter of program at annual and at quarterly meetings, it is proposed that only two papers be presented, and that the time allotment be such that the allowed period for discussion is greater

than for the presentation. By this arrangement it is hoped that a larger number of members will take part in the discussion of each paper, to the end that full expression of the ideas and experiences of many members may be given for the benefit of all.

It is further proposed that one of the two papers should be on a subject of research, and that the other should deal with a structure of local interest. It is a fortunate combination to have both of the subjects closely related, so as to give unity to the entire program, as was true of the day's program in January, 1929.

The general topic for the day dealt with the subject of concrete arches. The morning session was given over to reports of research on concrete arches and celluloid models of arches as tested in laboratories; the afternoon session included a description of the load test of the Yadin River Bridge and a comparison of field results with the arch theory as commonly used and with the predictions from a model.

There was active discussion by many engineers on the subject of expansion joints for such structures and on the effect of the continuous superstructure of a bridge in modifying and reducing the stresses in the arch itself.

Committees. The Executive Committee created in January, 1929, five major Committees within the Structural Division: one on Masonry and Reinforced Concrete; one on Steel; one on Timber; and one on Manual. The Chairmen of these four Committees constitute the fifth Committee known as the Advisory Committee. The Chairmen of the first four Committees named are A. E. Lindau, F. E. Turneure, Hermann von Schrenk, and F. H. Constant, respectively. The membership of these various Committees is the result of appointment by the Executive Committee in collaboration with the Chairman of each Committee.

The purpose and duties of the three Committees on Materials is to pursue the study and gather information, through sub-committees formed from their personnel, of their respective subject, and to furnish the results to the Manual Committee for compilation into a Manual for publication and distribution. The Committee reports will constitute subjects for discussion at Division meetings. The membership of the several Division Committees is fairly

large and representative of various interests.

Finally, the Executive Committee will welcome that interest in Division affairs that will result in suggestions being sent to it by individual members. In the membership is the life of the organization, and this membership is encouraged toward activity.

Surveying and Mapping

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undertake the location and construction of a tunnel through a mountain range or the laying out of subways under city streets without the use of very precise surveying instruments and methods.

The large centers of population will find it more difficult from year to year to do city planning with a view to relieving congestion of traffic and of population. The best method for city planning is recognized as that based on high-grade topographic maps. The size of cities and towns is, to a great extent, limited by the available water supply, but there are many such settlements that really do not know how much water is available for use. It is only by adequate stream gauging, which is really surveyor's work, and the making of topographic maps, that the city engineer is able to judge as to the availability of water in streams and rivers somewhat distant from the community.

The Federal Government realizing the greater importance of accurate surveys and maps to engineering and other activities and their necessity as a means of eliminating waste in industry has increased its surveying and mapping activities in the last few years. However, it would seem that the appreciation of the public for accurate mapping information is so much greater than it formerly was that the demands on the Federal mapping and surveying agencies are more than can be met.

The Division of Surveying and Mapping of the American Society of Civil Engineers was organized in the fall of 1926 in order to provide a means by which public and private surveying and mapping could be better cared for. The Division has the following Standing Committees:

Control Surveys.

Location and Construction Surveys.

Property Boundary Surveys.

Topographic and Hydrographic Surveys.

In addition to these are the following Special Committees which have been appointed by the Executive Committee of the Division:

City Surveys.

Third and Fourth Order Triangulation and Traverse.

Levels.

Definition of Surveying Terms.

Papers and reports are being submitted by the Chairmen of these Committees and it is expected that each one of them will prepare one or more manuals which will give specifications for various classes of surveying and mapping and suggestions as to field and office procedure in carrying on work.

The members of the Executive Committees and of these Standing and Special Committees solicit the co-operation and support of those members of the Society who are especially interested in problems of surveying and mapping.

Boston-October 9, 10, 11

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members are more or less scattered.

The Boston men are particularly anxious that those members not resident in Boston and "vicinity" shall feel that the meeting belongs to all New England, and to New Brunswick and Quebec Provinces. This is the nucleus that is to be considered as "host" to many members of the Society resident all over the country, and, in fact, the world!

The main topic on Wednesday is to be the Engineering Features of Metropolitan Boston, with detailed accounts of the Park System, Water Supply, Transportation, and Sewerage, and an exposition of the general method of such a metropolitan development and its administration. There will also be sessions of the City Planning, Structural, Highway, Surveying and Mapping, and possibly the Power Divisions.

For Wednesday evening there is planned a dinner and a lecture or talk on "The Procession of the Presidents", by Mr. Robert Lincoln O'Brien, former editor of *The Boston Herald*. On Thursday evening there is a dinner and dance; on Friday, an excursion to engineering features, to historic points, and to a "Shore Dinner" *de luxe*. For the ladies, entertainment will be practically continuous.

A Real Program

THE Western Washington Section has undertaken a procedure, the success of which will be watched with a great deal of interest by many.

The plan, for the ensuing year, is to start, in September, a program of education of the public in the merit and importance of the Federal Government's activities requiring State co-operation in topographic mapping, stream gauging, and investigation of mineral and industrial resources.

The Board of Direction has adopted, at various times, resolutions supporting these objectives in the abstract or in particular instances. That a Section should take direct hold of a problem of value not only to engineers but to the public, and should carefully formulate plans whereby the public may be accurately informed, is a distinct step along the lines in which many believe the Society should advance.

Such a program, moreover, will have many side-lights. The collection of the necessary data, their assembly in logical context, and their presentation in convincing form, will all be processes which will repay the time and effort expended by those individuals participating. There will be, too, the opportunity for enlisting the services of a large personnel, some adapted to one phase of the work, and some more particularly to another phase, the whole making a group activity on which there may be real team work.

It is a real program which the Section is undertaking, and its success should point the way for other Sections to follow, and to other subjects susceptible of like treatment.

Society Affairs

THAT portion of the September 1st, Part I of Proceedings, known as Society Affairs, is full of meat for those vitally interested in the Society, its management, and its procedures.

The first fourteen pages is a pronouncement in regard to the Society's publication policy. It is both general and specific. It is for the purpose of furnishing information to members of the Society about the preparation of papers, the character and type of papers suitable for publication, the kind of publication in which they will be printed, the gen-

eral rules regarding acceptance of papers, editing, and the like.

Following, there is the Report of Tellers on the First Ballot for Official Nominees. Thereafter, forty-nine pages are devoted to a Tentative Report on the subject of Charges for Professional Services, a report published that comments may be submitted by the membership.

On pages 285 to 289 is a report by the Committee on Meetings and Publications. It contains the following statements: There was "put into effect a drastic policy with respect to the editing of papers and discussions." "Proceedings is . . . a working tool . . . designed to be efficient rather than attractive. It should be as nearly as practicable of service to all members. It must contain, therefore, technical matter of varying theoretical degree." "In general, Division meetings are not directed for the present at publications, but at audiences." "Care should be taken to select [from Division meeting programs] . . . such papers, as should be printed in full or developed for publication."

"From the Technical Divisions there may be expected Committee reports on various subjects . . . of increasing practical value to the membership. They should all be printed." . . . a large majority of the (thirty-five) Division Committees are active, and . . . worthwhile results may be expected." The report ends with six recommendations which were adopted by the Board of Direction.

There follows a very brief abstract of actions completed by the Board; a list of current civil engineering literature; data *re* men available for civil engineering positions, *re* membership additions, etc.

This portion of Part 1 is non-technical in character and, together with Part 2, is informative with respect, as its designation implies, to Society Affairs.

September Proceedings

THE President's Annual Address, delivered at the Milwaukee Convention, opens this number. For his subject Dean Marston took "Engineering and Engineering Education".

He confined himself to two main topics: A discussion of a definition of engineering; and a forecast of the trends in engineering education and of the probability of control by National engineering societies.

The next two papers deal with engineering problems of Niagara. On the subject of "Niagara Power", Norman R. Gibson, Member, follows the development of the present plant, together with the problems presented, and visualizes the economic and social possibilities of its future expansion.

Another important problem, "Regulation of Levels, Flow, and Navigation, Niagara River", was considered by George B. Pillsbury, Member. He reviews previous studies made on this difficult subject by both Canadian and American engineers. The results, concludes Colonel Pillsbury, do not show the advisability of trying to regulate the flow.

"Pulverizing of Sewage Screenings at Baltimore, Md." is described by C. E. Keefer, Member. Tests showed that a pulverizing machine would shred 2 tons of screenings from raw sewage per hour using 0.25 kw-hr. of current per cu. ft. of ground material. This compares favorably with the alternative cost of pressing and incinerating.

On a similar topic is a Report of the Committee of the Sanitary Engineering Division on "Friction of Sewage Sludge in Pipes". The Committee concludes that sludge has a variable character, but resembles suspended matter with a certain critical velocity governing its friction in flow. Although the water content, temperature, and condition of the sludge have known effects on the friction, no law could be found. Further investigations, therefore, are recommended.

Still another Committee report from the same Division covers "Filtering Materials for Water and Sewage Works". Laboratory tests covering materials for sewage trickling filters have been investigated by the Committee and comparative suitabilities of materials for a given installation have been studied. This progress report briefly discusses the work, which is given more in detail in four appendices.

Discussions to the number of 41 on 12 papers and reports already printed, and 26 memoirs conclude the September Proceedings.

More Re Registration

EXCERPTS from Assembly Bill No. 174, Chapter 801, of the Laws of California approved by the Governor, June 14, 1929:

It shall be unlawful for any person to practice as a civil engineer in this state, unless such person has been duly registered. . . .

No one shall represent himself as, or use the title of "Registered Civil Engineer", unless he is qualified by registration under this act.

All members of the state board of registration shall be civil engineers.

The secretary (of the Board) shall prepare annually a roster showing the names, places of business and residence of all registered civil engineers . . . a copy to be furnished to each civil engineer registered. . . .

Application for examination for registration as a civil engineer . . . shall contain satisfactory evidence under oath that applicant

a—Is at least twenty-five (25) years of age.

b—Is of good character.

c—Has been engaged in the practice of civil engineering for at least six (6) years, and during that period had responsible charge of engineering work as a subordinate to a civil engineer for at least one (1) year. Graduation from an engineering school or college, approved by the board, shall count as four (4) years of practice and each year of study completed without graduation, in an engineering school or college, approved by the board, shall count as one-half year of practice.

Application shall be accompanied by a fee of fifteen dollars. . . . Any applicant, who has passed the examination prescribed by the Board shall, upon payment of an additional fee of ten dollars . . . have issued to him a certificate of registration. Every civil engineer registered . . . shall . . . pay . . . a fee of five dollars . . . for which a renewal certificate of registration for the current year shall be issued.

The Board is hereby empowered to arrange for reciprocal registration . . . and shall, upon payment of a fee of ten dollars . . . issue . . . a certificate of registration.

Nothing in this act shall be construed as prohibiting a civil engineer from practicing his profession through the medium of or as employee of a partnership or corporation, provided that the plans, specifications, and reports of such partnership or corporation be signed and be stamped with the seal of each registered civil engineer in specific and responsible charge of the preparation of the same.

It shall be the duty of the board to inquire into the identity of any person not registered, as provided in this act, and practicing as or claiming to be a civil engineer.

It shall be the duty of the respective officers charged with the enforcement of laws and ordinances to prosecute all persons charged with the violation of any of the provisions of this act.